Table 1. Causes of Lung Cancer

Smoking
Secondhand smoke exposure
Indoor radon
Occupational carcinogens, e.g., asbestos, arsenic, radon, chloromethyl ether
Outdoor air pollution
? Diet, other occupational factors

Selected bibliography:

1. US Department of Health and Human Services (USDHHS). The health effects of active smoking: A report of the Surgeon General. 2004. Washington, D.C., U.S. Government Printing Office.
2. US Department of Health and Human Services (USDHHS). The health effects of involuntary exposure to tobacco smoke. 2006. Rockville, MD, US Department of Health and Human Services (USDHHS); Centers for Disease Control and Prevention (CDC).
3. Alberg AJ, Brock MV, Samet JM. Epidemiology of lung cancer: looking to the future. J Clin.Oncol. 2005;23(14):3175-85.
4. Alberg AJ, Samet JM. Epidemiology of lung cancer. Chest 2003;123(1 Suppl):21S-49S.
5. International Agency for Research on Cancer (IARC). Tobacco smoke and involuntary smoking. IARC monograph 83. (83). 2004. Lyon, France, International Agency for Research on Cancer.

PL1-02 **Tobacco or Health?, Mon, Sept 3, 08:15 - 10:00**

Smoking Cessation and Lung Cancer

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Approximately 30% of all cancers in developed countries are caused by smoking and 80-90% of all lung cancers. Currently in the United States, approximately 50% of patients diagnosed with lung cancer are former smokers or never smokers with the remaining 50% being persistent smokers. 76% of head and neck cancers are attributed to smoking and 51% continue to smoke during their therapy. These numbers are more difficult to ascertain in more developing countries where the epidemic of smoking is in a different, earlier stage. However, there an estimated 1 billion smokers in the world today, and the majority are in developing countries. Therefore, the tobacco caused cancers, such as lung cancer will only continue to be an epidemic unless effective cessation programs are immediately instituted. Oncologists are acutely aware of the dangers of cigarette smoking and its relationship to carcinogenesis, however, they are not sufficiently active in helping their patients, already diagnosed with lung cancer, to stop them from persistent smoking. In order to maximize clinical outcomes from therapy, it is important for the oncologists to work aggressively with their patients who are still smoking. It is not "too late", and it is not too difficult or too stressful for their patients to stop smoking. What is striking in the literature is the paucity of studies examining concurrent smoking status as related to treatment outcomes. It is unclear whether the oncologists are closely monitoring their patient's smoking status or even considering it as a possible source of co-morbidity. Prospective studies are critical to examine the specific effect of smoking status on lung cancer chemotherapy or radiation therapy.

Current expert smoking cessation guidelines recommend two levels of intervention: in the primary care or oncologist's office or by a specialist in smoking cessation clinics or quitlines. The initial oncology office visit is the ideal opportunity to explain the importance of cessation and to offer advice about stopping smoking.

The cornerstone of a smoking cessation strategy is the routine provision of the '"'5 A's" with the use of pharmacotherapy. If there is a Quitline or other cessation services available, the first 2 A's with an R (refer to cessation services) are the recommend guideline.

The 5 A's are:

ASK - about smoking status, how soon do they have their first cigarette in the morning, number of cigarettes per day, how many times have they tried quit, what medication or method have they tried before and record it in the patient's chart.

ADVISE - current smokers that if they quit, they will probably have an improved outcome from their oncologic therapy and a decrease potential for side effects. Personalize the reasons for stopping smoking and relate the reasons to their treatment. Have the patient set a quit date either for the current day, or within the next few days. Record in the patient's chart their responses and intentions.

ASSESS - the current motivational status of the smoker to stop. Consider a brief questionnaire that would identify the smoking status with the clinical intake form. Normally this step includes the assessment of whether the patient is ready to quit. However, for a patient with a diagnosis of lung cancer, this should be an abbreviated step. Use their diagnosis and need for treatment as the perfect teachable moment

ASSIST - smokers motivated to stop smoking by providing advice and support AND appropriate pharmacological therapy. Utilize the opportunity for referrals to quitlines that have been developed around the world. These quitlines provide cessation advice and support, are usually free and effective. The clinical office simply identifies the smoking status, reinforces the importance of stopping smoking and then refers the patient to the Quitline or cessation services. In some centers, such as Memorial Sloan-Kettering Hospital in New York City or the MD Anderson Cancer Center in Houston Texas, there are excellent referral programs that help patients to stop smoking within the center.

When assisting the patient to stop smoking, pharmacotherapy should be recommended to increase the efficacy of the counseling therapy. Bupropion SR 150 mg PO BID or varenicline xxx BID can be recommended for cessation therapy. At present, with the increasing information about the anti-apoptotic and proliferative effects of nicotine, NRT is not recommended for cessation therapy for a patient who has a diagnosis of cancer. When considering bupropion, there should be an assessment of a history of previous or current seizure or eating disorder, recent or current use of MAOIs, severe hepatic cirrhosis, bipolar disorder, or drug interactions with theophylline, tricyclics, SSRIs, MAOIs, antipyschotics, beta-blockers, class 1c antiarrhythmics, enzyme inducers, orphenadrine, cyclophosphamide. Of course, persistent smoking should also be considered with its concomitant drug interactions.

The patient should be urged to participate in the behavioural support programs that are offered with either Zyban, Chantix/Champix or Quitline/cessation services. These behavioral support programs may also be provided by their insurance companies in the USA. Other sources of support should be made available either through the oncology clinic, various other organizations, for example the American Cancer Society, or perhaps most easily through the state or national Quitline. Learn if you have one available! Behavioral support is critically important, especially for the lung cancer patient who not only just received a life-threatening diagnosis, but also must stop one of the most addictive substances in our society.

Table I contrasts the two forms of pharmacotherapy.

Bupropion HCL SR (Zyban)	Varenicline (Chantix or Champix)
Available by prescription	Available by prescription
Believed to act directly on the pathways in the brain responsible for nicotine dependence and withdrawal	Partially replaces one form of nicotine delivery with a drug that works at the same site of action as nicotine (partial nicotine receptor agonist)
Reduces withdrawal symptoms and craving for cigarettes	Reduces withdrawal symptoms and craving for cigarettes
Start using 1 week before stopping smoking	Start using 1 week before stopping smoking
120 tablet course – 1 (150 mg) tablet once a day for the first 3 days then 1 (150 mg) tablet twice a day for 7-9 weeks – can be continued	0.5 mg PO qd for days 1-3; 0.5 mg PO BID for days 4-7; 1 mg PO BID for 11 weeks; can be continued
'Non-nicotine' therapy	'Non-nicotine' therapy

ARRANGE - follow-up visit, best timed with the next oncology clinic visit, to check on progress and offer further advice and support as necessary. Congratulate and encourage on-going cessation with routine follow-ups. The oncologist and nurses should work to prevent relapse to by encouraging active discussion of the potential gained health benefits and possible improved responses to therapy.

PATIENTS WHO RELAPSE or UNWILLING TO QUIT

Most smokers make several attempts to stop before finally succeeding; therefore relapse should not be unexpected. If a smoker has experienced severe withdrawal effects or has requested more intensive help, consider referral to a specialist smoking cessation clinic. Higher rates can often be achieved with these more intensive specialist clinics. Both individual and group treatment can be offered by clinics. Refer the patient back to the available Quitline or cessation services.

Use the "5R's" to discuss smoking cessation with patients who are not currently motivated to quit:

Relevance - make cessation personally and specifically relevant to patient's disease or health risk, family or social situation

Risks - discuss with the patient the risks of ongoing smoking, including risks of 'light' or filtered cigarettes

Rewards - identify the benefits specifically for the patient, such as improved response to therapy, better quality and length of life, save money, provide healthier environment for their family

Roadblocks - discuss the potential barriers to quitting smoking, their fears of why they might not be successful

Repetition - repeat this motivational intervention with each visit

It is critical for the oncology patient (and their family) to clearly understand the message that stopping smoking or other tobacco use, is important to their treatment plan and outcome. This message and response should be recorded into the patient record on every visit. Not until the healthcare provider adopts this approach will we be able to decrease the number of patients who persist with the intake of numerous drugs or chemicals multiple times per day that negatively impact on their treatment outcomes - ie, from their smoking.

Below is a sample questionnaire that could be incorporated into the intake form for the clinic.

Clinical assessment of smoking status

Name_____ Date _____

1. Do you smoke now? Yes No (circle one)
2. If you have ever smoked, for how many years did you smoke? (circle one)
   - 1-2 yrs
   - 5-10 yrs
   - >10 yrs
3. If you have quit smoking, how long ago did you quit?
   _____ years
4. If you used to smoke, or still do: how many cigarettes do you smoke each day? (circle one)
   - <10 cig/day
   - 10-20 cig/day
   - >20 cigs/day
5. When do you have your first cigarette of the day? (circle one)
   - no particular time
   - within 30 minutes of waking up
   - after 30 minutes of waking up
6. Did you experience any cravings/withdrawal symptoms? (if yes, check all that apply)
   - lethargy
   - depression
   - irritability
   - impaired concentration
   - restlessness
7. How many times have you tried to quit using tobacco before? (circle one)
   - none
   - 1-2 times
   - 3 or more times
8. What methods to quit have you tried before? (Circle all that apply)
   - Quit on my own (Cold Turkey)
   - Nicotine gum or lozenge
   - Nicotine patch
   - Nicotine Inhalator
   - Nicotine nasal spray
   - Zyban (bupropion)
   - Champix/Chantix (varenicline)
   - Other _____
9. Expected challenges to quit attempts (circle all that apply)
   - other household smokers
   - cravings
   - weight gain
   - personality changes

Other _____

10. Are you motivated to make quit using tobacco? (circle one)
yes maybe no

Reference:

Cessation guidelines: http://www.surgeongeneral.gov/tobacco/tobaqrg.htm

Gritz ER, Dresler CM, Sarna L. Smoking: the missing drug interaction in oncology clinical trials: ignoring the obvious. Cancer Epidemiol Biomarker Prev 2005;14(10):2287-93.

PL1-03 **Tobacco or Health? Mon, Sept 3, 08:15 - 10:00**

Garnering global support: the WHO FCTC as a cancer prevention tool

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Tobacco is the single largest preventable cause of death in the world, which killed an estimated 5.4 million people in 2006. Trends indicate that by 2030, 70% of the total deaths will occur in developing countries. It is currently responsible for the death of one in ten adults worldwide. Half the people that smoke today - that is about 650 million people - will eventually be killed by tobacco. The World Health report 2002 ranked tobacco consumption as the second leading risk factor globally, while for industrialized countries, with just over one-fifth of the world's population , tobacco is the leading risk factor, accounting for about 12% of all disease and injury burden.

Overwhelming evidence showed that tobacco use is harmful and addictive. All forms of tobacco cause many fatal and disabling health problems throughout the life cycle.

As the estimated number of attributable deaths increased with one million in ten years (1990-2000) the world faced a rapid evolution of the tobacco epidemic with the increase of the burden being most marked in developing countries. The spread, as well as the reinforcement of the epidemics carried out through complex mix of factors that transcend national borders. Most of the smoking-related disease burden is still found in industrialized countries and the burden of disease attributable to tobacco concentrates in countries with a higher prevalence of smoking, countries with a very high number of smokers if only because of their demographic size, and or countries with limited capacity to face the tobacco epidemic. Globalization of the epidemic restricts the capacity of countries to regulate tobacco through domestic legislation alone - making international coordination of policies essential.

The association between tobacco smoking and cancer was demonstrated by Sir Richard Doll's in 1950, in his paper that has become a public health classic. After a half of a century, the Report of the Surgeon General in 2004 stated not only that "cancer is the second leading cause of death" but also the fact that cancer "was among the first diseases causally linked to smoking". We know that lung cancer is the most frequent cause of cancer death, and cigarette smoking causes most cases. Tobacco's role in increasing the chance of lung cancer is one of the most widely known of tobacco's harmful effects on human health. An overwhelming 87% of lung cancer deaths can be attributed to tobacco use. For smoking-attributable cancers, the risk generally increases with the number of cigarettes smoked and the number of years of smoking, and generally decreases after quitting completely. The risk of dying from lung cancer is more than 22 times higher among men who smoke cigarettes and about 12 times higher among women who smoke cigarettes compared with never smokers. Besides lung cancer, tobacco use also causes increased risk for cancer of the mouth, nasal cavities, larynx, pharynx, esophagus, stomach, liver, pancreas, kidney, bladder, uterine cervix, and myeloid leukemia.

In developed countries, where the tobacco epidemic took hold much earlier than in the rest of the world, tobacco-related cardiovascular and lung diseases and cancers cause a significant proportion of total deaths and chronic disability.

In developing countries tobacco is one of the leading risk factors and its importance is growing quickly even in countries where infectious and maternal and child problems have traditionally dominated the ranking of most frequent diseases. It is urgent to act now at country-level to stop the tobacco epidemic.

The constant challenge for tobacco control in the countries is to "clear the smoke" surrounding tobacco issues. And this can be done through educating the decision makers and policy leaders on the feasible and cost-effective tobacco control measures that will protect public health. While the involvement of the decision makers is of major importance for tobacco control, the contribution of physicians, as well as all health professional, is critical as they are the ones in direct communication with the patients. They can educate their patients about the personal health costs of tobacco use. Some of the tobacco control interventions aim to educate the public to "inform" the government that represents it about the public health costs. Another challenge faced by tobacco control is to anticipate and counter the opposition. The tobacco industry is a prime example of how global business operations can be promoting cigarette consumption while at the same time distorting public perceptions of the risks involved. Because cancer is a concern for many people, and tobacco has been inextricably linked to the use of tobacco, many organizations in the world are now committed to tobacco control. Besides public health campaigning groups, health authorities, as well as private companies (i.e. pharmaceutical companies) aim to influence policies to control risks.

Experience has shown that there are many cost-effective tobacco control policies and measures that can be used in different settings and that can have a significant impact on tobacco consumption.

The most cost-effective strategies are population-wide public policies, like tobacco tax and price increases, complete bans on direct and indirect tobacco advertising, establishment of smoke-free environments in all public and workplaces, and large clear pictorial health messages on tobacco packaging. All these measures are included as provisions of the first international public health treaty, which is the WHO Framework Convention on Tobacco Control (WHO FCTC). This treaty is the global response to the global impact of tobacco and the lack of comprehensive and sustainable tobacco control programs. Through the WHO FCTC, governments recognized the danger for the global public health as well as the need for more stringent tobacco control uniformly recognized - including the above-mentioned evidence-based measures: increased taxation, bans on advertising, and the introduction or expansion of smoke-free environments and cessation programmes.

WHO FCTC entered into force on 27 February 2005, and it represents a breath of fresh air to re-invigorate tobacco control efforts that establishes tobacco control as a priority on the public health agenda, provides an evidence-based tool for adoption of sound tobacco control measures and also introduces a mechanism for firm country commitment and accountability. The level of global support and commitment has been phenomenal, the Treaty quickly became one of the most widely embraced UN Treaties, and has garnered currently 146 contracting parties.